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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/831,416 | 05/09/2001 | John Canning | CU-2504 RJS | 4223 |

26530 7590 02/13/2003

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| EXAMINER |
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VALENTIN, JUAN D

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| ART UNIT | PAPER NUMBER |
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2877

DATE MAILED: 02/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/831,416

Applicant(s)

CANNING, JOHN

Examiner

Juan D Valentin II

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 18-34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 25 and 26-29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Regarding claim 25, the specification does not define “two gratings which mirror one another”. What Examiner is unsure as to what is meant by “mirror one another”? Claim 25 will be examined to the best understanding of the Examiner in light of the specification. Regarding claim 26, the specification does not define the term reflective index. The Examiner will examine the claim using a constant refractive index that extends in the propagation direction of the waveguide. Claims 26-29 are rejected because they are dependant off the rejected claim 26.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 18-24, 26, 31, 32, and 34 rejected under 35 U.S.C. 102(e) as being fully anticipated by Yoshimura et al. (USPN ‘632, hereinafter Yoshimura).

Claim 18

Yoshimura discloses an optical waveguide structure comprising an optical waveguide having a bend and being formed of a photosensitive material and a grating structure arranged to guide light of a predetermined wavelength around the bend in the waveguide (Fig. 7, col. 12 and 13, lines 30-32 and 14-21). Yoshimura further discloses the grating structure comprising UV-induced refractive index variations in the waveguide (col. 10, lines 62-67).

Claim 19

Yoshimura further discloses an optical waveguide structure wherein the grating structure comprises a chirped grating (Fig. 18). Applicant will be appreciated that the disclosed grating is chirped, therefore reading on the claimed limitation.

Claim 20

Yoshimura further discloses an optical waveguide structure wherein the grating structure comprises a sampled grating (col. 26, lines 57-63). Applicant will be appreciated that even though Yoshimura does not specifically disclose a sampled grating, Yoshimura does disclose a tunable switch/filter. It is inherent and well known to someone of ordinary skill in the art that a tunable switch/filter comprises a sampled grating. Therefore the reference of Yoshimura reads upon the applicants claimed limitation.

Claim 21

Yoshimura discloses an optical waveguide structure wherein the grating structure is disposed to guide the light in a reflection mode (Fig. 18). It is the position of the Office that Fig. 18 satisfies that applicants claimed limitation, applicant will be appreciated that the reference of Yoshimura reads upon the claimed limitation.

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Claim 22

Yoshimura discloses an optical waveguide structure wherein the grating structure is disposed to guide the light in a transmission mode (Fig. 18). It is the position of the Office that Fig. 18 satisfies that applicants claimed limitation, applicant will be appreciated that the reference of Yoshimura reads upon the claimed limitation.

Claim 23

Yoshimura discloses an optical waveguide structure wherein the bend comprises a bend at a branched section of the waveguide (Fig. 18).

Claim 24

Yoshimura discloses an optical waveguide structure wherein the grating structure comprises a continuous grating (Fig. 18). It is the position of the Office that the grating in Fig. 18 is continuous through the branched section of the waveguide, therefore applicant will be appreciated that the reference of Yoshimura reads on the claimed limitation.

Claim 26

Yoshimura further discloses an optical waveguide structure wherein the grating structure includes regions of constant reflective index that extend in a propagation direction of the waveguide (Fig. 19). It is the position of the Office that the grating in Fig. 19, has regions of constant reflective index that extend in the direction of propagation of the waveguide. Applicant will be appreciated that the reference of Yoshimura reads upon the claimed limitation.

Claim 31

Yoshimura discloses an optical waveguide structure wherein the device comprises two or more grating structures angularly disposed with respect to each other to guide the light around a plurality of bends in the waveguide (Fig. 45, col. 17, lines 4-43).

Claim 32

It is the inherent and well known in the art that UV-holography is a form of UV irradiation. It is the position of the Office that the UV irradiation of Yoshimura (col. 14, lines 6-17) even though not disclosed specifically as UV-holography, is equivalent. Therefore producing the same results as the applicants limitation, therefore applicant will be appreciated that the reference of Yoshimura reads on applicants claimed limitation.

Claim 34

Yoshimura discloses a method of adapting a photosensitive waveguide to guide light of a predetermined wavelength around a bend in the waveguide comprising using UV light to induce refractive index variations in the waveguide such that at least one grating structure is formed, wherein the grating structure is disposed to guide the light around the bend (Fig. 7, col. 10, 12 and 13, lines 62-67, 30-32 and 14-21, resp.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 25, 27, 28-30, and 33 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura in view of Facq. Et al. (USPN '437, hereinafter Facq).

Claim 25

Yoshimura substantially teaches the claimed invention except that it fails to show an optical waveguide structure wherein the grating structure comprises two gratings which mirror one another. Facq shows that it is known to provide an optical waveguide structure wherein the grating structure comprises two gratings that mirror one another for an optical fiber Bragg grating system (Fig. 5). It would have been obvious to someone of ordinary skill in the art to combine the device of Yoshimura with the grating mirror structure of Facq for the purposes of providing efficient coupling of light signals from one optical fiber to another.

It is the position of the Office that the fiber gratings in Fig. 5 mirror one another in order to provide for efficient coupling. Therefore, the reference of Yoshimura in view of Facq reads upon the applicants claimed limitations.

Claim 27

Yoshimura substantially teaches the claimed invention except that it fails to show an optical waveguide structure wherein the regions extend parallel to the propagation direction. Facq shows that it is known to provide an optical waveguide structure wherein the regions extend parallel to the propagation direction (col. 3 and 4, lines 67-68 and 1-2) for an optical fiber Bragg grating system. It would have been obvious to someone of ordinary skill in the art to combine the device of Yoshimura with the optical waveguide structure wherein the regions extend parallel to the propagation direction of Facq for the purposes of providing efficient coupling of light signals from one optical fiber to another.

Claim 28

Yoshimura substantially teaches the claimed invention except that it fails to show an optical waveguide structure wherein the regions extend cylindrically parallel to the propagation direction. Facq shows that it is known to provide an optical waveguide structure wherein the regions extend cylindrically parallel to the propagation direction (col. 5, lines 35-48, Fig. 6A and 6B) for an optical fiber Bragg grating system. It would have been obvious to someone of ordinary skill in the art to combine the device of Yoshimura with the optical waveguide structure wherein the regions extend cylindrically parallel to the propagation direction of Facq for the purposes of providing efficient coupling of light signals from one optical fiber to another.

Claim 29

Yoshimura in view of Facq in conjunction with claim 28 rejection above, discloses the claimed invention except it fails to show an optical waveguide structure wherein the regions extend ellipsoidally parallel to the propagation direction. It would have been an obvious matter of design choice to someone of ordinary skill in the art to combine Yoshimura in view of Facq with an optical waveguide structure wherein the regions extend ellipsoidally parallel to the propagation direction. The applicant has not disclosed that an ellipsoidal grating region parallel to the propagation direction solves any stated problem or is for any particular purpose, it is a matter of design choice to choose the length of grating regions in radial directions and it is the position of the Office that the circular region disclosed by Yoshimura in view of Facq reads upon the applicants claimed limitation.

Claim 30

Yoshimura substantially teaches the claimed invention except that it fails to show an optical waveguide structure wherein the device further comprises at least one optical reflector disposed in a direction transverse to a propagation direction of the waveguide to aid in guiding the light around the bend. Facq shows that it is known to provide an optical reflector disposed in a direction transverse to a propagation direction of the waveguide (Fig. 4, col. 4 and 5, lines 64-68 and 1-12, resp.) for an optical fiber Bragg grating system. It would have been obvious to someone of ordinary skill in the art to combine the device of Yoshimura with the optical reflector disposed in a direction transverse to a propagation direction of the waveguide of Facq for the purposes of providing efficient propagation of light signals through a bend waveguide.

Claim 33

Yoshimura substantially teaches the claimed invention except that it fails to show an optical waveguide structure as a sensor further comprising means for measuring an intensity of the light at a predetermined point along the waveguide for determining changes in intensity due to induced changes in confinement conditions of the sensor. Facq shows that it is known to provide an optical waveguide structure as a sensor further comprising means for measuring an intensity of the light for an optical fiber Bragg grating system (col. 5, 6, and 7, lines 35-68, 1-68, and 1-13, resp.). It would have been obvious to someone of ordinary skill in the art to combine the device of Yoshimura with the optical waveguide structure as a sensor of Facq for the purposes of providing efficient propagation of light signals through a bend waveguide.

It is obvious and well known to someone of ordinary skill in the art that the measured flux of Facq is equivalent to the claimed measured light intensity of Applicant. Facq shows

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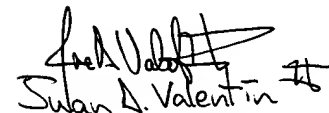
different sensors for different changes in confinement conditions as well. Therefore, Applicant will be appreciated that the reference of Yoshimura in view of Facq reads upon the claimed limitations.

Conclusion

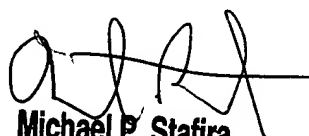
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan D Valentin II whose telephone number is (703) 605-4226. The examiner can normally be reached on M-Th., Every other Fr..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (703) 308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308- 0955.


Juan D. Valentin II
Examiner 2877

JDV
February 4, 2003


Michael P. Stafira
Primary Patent Examiner
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